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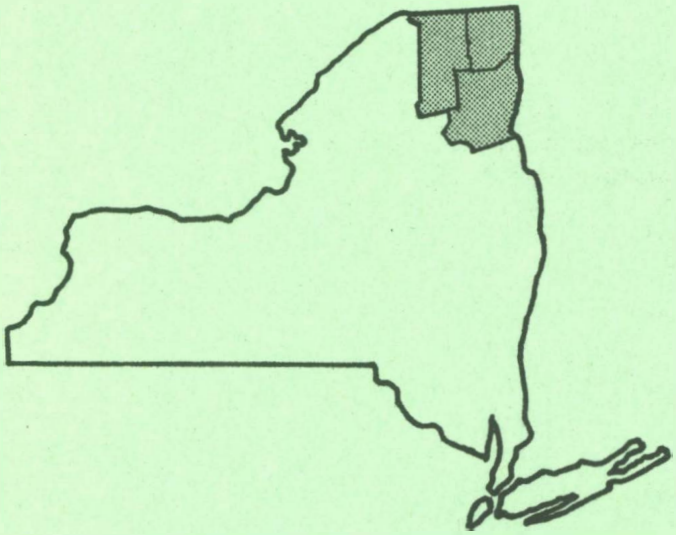
Forest Statistics for

NEW YORK

Forest District No. 9



Forest Statistics Series:
New York No. 9

Northeastern Forest Experiment Station

Upper Darby, Pennsylvania
Ralph W. Marquis, Director

1954

United States Department of Agriculture • Forest Service

FOREWORD

This is the ninth in a series of reports about forest areas and timber volumes in the State of New York. These reports are products of the forest survey of the Northeast, carried on by the Northeastern Forest Experiment Station as part of the nationwide forest survey being made by the Forest Service, U. S. Department of Agriculture.

A similar report has been prepared for each of the other forest districts in the State of New York. The primary purpose of these reports is to provide basic forest statistics for the administrative use of the New York Department of Conservation.

The New York Department of Conservation aided the Northeastern Station greatly in the forest survey of the State. The Department not only provided the aerial photographs used in the survey, but also cooperated in many other phases of the work.

Field work in Forest District No. 9 was supervised by N. B. Griswold. The statistical procedures for obtaining field-inventory data were developed by C. Allen Bickford. Computations were made under the supervision of Roland H. Ferguson.

Ralph W. Marquis

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Director

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FOREST STATISTICS FOR NEW YORK FOREST DISTRICT NO. 9

Prepared by

Division of Forest Economics

Northeastern Forest Experiment Station
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GENERAL

Forest District No. 9 lies in the northeast corner of New York. From Lake Champlain it extends westward halfway across the northern part of the State. From Canada, the northern boundary, it extends southward as far as Lake George. It includes these three counties: Clinton, Essex, and Franklin.

Most of this District is within the Adirondack Park[1] and the topography is characteristically rugged and mountainous. The northern border is gently rolling to hilly land but, because of soils of low fertility and the wetness of some areas, the agricultural values are poor. About half the forest land drains into Lake Champlain; more than a third into the St. Lawrence River; and less than a fifth into the Hudson River.

[1] THE ADIRONDACK PARK AS SHOWN ON MAPS OF NEW YORK STATE INCLUDES BOTH STATE AND PRIVATE LANDS.

Forest Area

The total land area of the District amounts to about 2,925,000 acres. The forest-land area is more than 2,253,000 acres. Nearly 702,000 acres of the total forest land are noncommercial. Of this, 675,000 acres in the State Forest Preserve[2] are reserved from timber cutting. The remaining 27,000 acres are considered incapable of producing usable wood products.

The commercial forest-land area amounts to 1,552,000 acres, of which 39 percent is in Franklin County, 36 percent in Essex County, and 25 percent in Clinton County.

Ownership

About 97 percent of the commercial forest land is privately owned. Farmers own slightly less than a fourth of this and the rest is in industrial and other private holdings. Of the public ownership,[3] 93 percent is held by the State--mainly in State Forests. The remainder is almost equally divided among Federal, county, and municipal holdings.

Forest Types

Hardwood types are predominant; they account for 71 percent of the commercial forest land. The sugar maple-beech-yellow birch type alone represents 43 percent of the forest area. The aspen type, generally found on land that has been misused, covers 17 percent.

The softwood types are the spruce-fir types, which are found on 14 percent of the forest land; and the white pine and white pine-hardwood types, on 9 percent.

Forest Stands

One-third of the commercial forest land is in saw-timber stands of at least 1,500 board feet per acre. How-

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[2] THE STATE FOREST PRESERVE COMPRISES LAND OWNED BY THE STATE IN THE 12 FOREST PRESERVE COUNTIES IN THE ADIRONDACKS AS DEFINED BY LAW.

[3] OUTSIDE THE LIMITS OF THE ADIRONDACK PARK AND NOT SUBJECT TO THE CONSTITUTIONAL PROHIBITION AGAINST CUTTING, WHICH APPLIES TO THE STATE FOREST PRESERVE LANDS.

ever, only a tenth of the forest land supports the heavier sawtimber stands of more than 5,000 board feet per acre. And this small area carries 51 percent of the total board-foot volume.

Poletimber stands occupy 42 percent of the commercial forest land. Seedling-and-sapling stands and nonstocked areas represent 24 percent of the forest area.

Timber Volume

The commercial forests contain about 3.1 billion board feet (log scale, International $\frac{1}{4}$-inch rule) of live sawtimber. Hardwood species make up 58 percent of the total board-foot volume; three species, sugar maple, beech, and yellow birch, account for 40 percent. The dominant softwood species are white pine and spruce. They represent a little more than a fourth of the sawtimber volume.

The growing stock amounts to 1,350 million cubic feet. Of this, 702 million cubic feet are in sawtimber trees and 648 million in poletimber trees. The total cubic volume is equivalent to about 17 million rough standard cords.

Blowdown Damage

The survey was completed before the severe windstorm of November 25, 1950. The storm changed the stand-size distribution, the volume of sawtimber, and the growing stock. The estimates of damage have been prepared from the basic data provided by the New York State College of Forestry. The amount of damage has not been deducted from the accompanying tables since there is no satisfactory way of distributing the loss by forest type or species.

There are 87,900 acres of forest land on which there is some windthrown timber. Of this, about 34,800 acres are commercial forest land. The remaining 53,100 acres are in the State Forest Preserve.

Of the total blowdown area in the commercial forest land, about 27,400 acres had only light damage, not enough to change the stand-size class of the stand. Heavier damage occurred on 7,400 acres, of which 5,900 acres were in sawtimber stands and 1,500 acres in poletimber stands. Of the 5,900 acres in sawtimber stands, 1,700 acres were changed to poletimber and seedling-and-sapling stands.

There was a total loss of 77.3 million board feet (more than 2 percent of the total board-foot volume) of sawtimber on the commercial forest land. The volume of windthrown sawtimber in the sawtimber stands amounted to 75.6 million board feet. The volume in sawtimber stands is further reduced by the amount of standing timber on the 1,700 acres which changed from sawtimber stand-size classes to poletimber and seedling-and-sapling stands. The greatest loss in sawtimber was in Essex County--57.6 million board feet. Of the total growing stock, 21.7 million cubic feet (nearly 2 percent) were blown down.

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Table 1.--Land area by major classes, 1950

Class of land[1]	Area	
	Acres	Percent
Forest land:		
Commercial	1,551,600	53
Noncommercial[2]	701,900	24
All forest land	2,253,500	77
Nonforest land	671,300	23
All land[3]	2,924,800	100

[1] See Appendix for definitions.

[2] Includes 674,700 acres in the State Forest Preserve that are reserved from timber cutting. Gross area of the Preserve is 770,902.19 acres. Also includes 27,200 acres of nonproductive forest land. All State ownership figures are as of September 30, 1952.

[3] Census of Agriculture, 1950. Water areas of 1 to 40 acres are included in the estimate of nonforest acreage.

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Table 2.--Land area and commercial forest-land area by county, 1950

County	Land area	Commercial forest-land area	
	Acres	Acres	Percent
Clinton	677,800	390,700	58
Essex	1,168,600	551,100	47
Franklin	1,078,400	609,800	57
All	2,924,800	1,551,600	53

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Table 3.--Commercial forest-land area by ownership, 1950

Ownership class	Acreage held	
	Acres	Percent
Private:		
Farm forest land[1]	337,600	22
Other private	1,164,900	75
Total private	1,502,500	97
Public:		
State[2]	45,800	3
County	1,400	(3/)
Federal[4]	1,000	(3/)
Municipal	900	(3/)
Total public	49,100	3
All ownerships	1,551,600	100

[1]Census of Agriculture, 1950.

[2]Includes commercial forest land administered by the New York State Conservation Department as State Forests and Game Management Areas, amounting to 24,485.25 and 640.00 acres respectively. Also included is the forest land of Dannemora Prison administered by the Conservation Department amounting to 19,536.48 acres. All State ownership figures are as of September 30, 1952.

[3]Less than 1 percent.

[4]All administered by the U. S. Army.

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Table 4.--Commercial forest-land area by forest type, 1950

Forest type	Area	
	Acres	Percent
Spruce-fir types	215,200	14
White pine types	142,000	9
Other softwood types	89,300	6
Sugar maple-beech-yellow birch	673,000	43
Aspen-gray birch	265,700	17
Other hardwood types	166,400	11
All types	1,551,600	100

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Table 5.--Commercial forest-land area by forest-type group and stand-size class, 1950

Forest-type group	Saw-timber stands	Pole-timber stands	Seedling-and-sapling stands and other areas	Total area
	Acres	Acres	Acres	Acres
Spruce-fir and spruce-fir hardwood	65,900	105,400	43,900	215,200
White pine and white pine-hardwood	86,400	32,300	23,300	142,000
Other softwood types	29,500	30,800	29,000	89,300
Sugar maple-beech-yellow birch	277,800	317,100	78,100	673,000
Aspen	(1/)	91,400	174,300	265,700
Other hardwood types	62,600	81,500	22,300	166,400
All types	522,200	658,500	370,900	1,551,600
Percent	34	42	24	100

[1]No field plots fell in this stand-size class.

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Table 6.--Commercial forest-land area by stand-size class and watershed, 1950

Stand-size class	Watershed			Total
	Hudson River	Lake Champlain tributaries	St. Lawrence River	
	Acres	Acres	Acres	Acres
Sawtimber stands:				
More than 5,000 board feet per acre	70,000	76,300	32,800	179,100
1,500 to 5,000 board feet per acre	92,600	158,800	91,700	343,100
Poletimber stands:				
More than 600 cubic feet per acre	52,100	199,200	148,500	399,800
200 to 600 cubic feet per acre	6,200	115,400	137,100	258,700
Other[1]	12,400	192,000	166,500	370,900
Total	233,300	741,700	576,600	1,551,600
Percent	15	48	37	100

[1]Includes seedling-and-sapling stands (304,700 acres) and nonstocked areas (66,200 acres).

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Table 7.--Net volume of live timber on commercial forest land by species, 1950

Species	Growing stock[1]		Sawtimber[2]
	Thousand cu.ft.	Equivalent in cords	Thousand bd.ft.
White pine	153,400	1,917,500	615,200
Spruce	110,100	1,376,200	254,500
Hemlock	58,700	733,700	159,700
Fir	65,600	820,000	106,800
Cedar	40,600	507,500	87,100
Red pine	21,100	263,700	59,500
Other softwoods	17,600	220,100	18,800
All softwoods	467,100	5,838,700	1,301,600
Sugar maple	231,200	2,890,000	562,600
Yellow birch	135,200	1,690,000	485,900
Beech	76,500	956,200	204,700
Paper birch	93,500	1,168,800	123,600
Red oak	34,000	425,000	90,600
Red maple	115,100	1,438,700	81,700
Basswood	43,500	543,800	71,500
Ash	32,700	408,800	63,700
Aspen	65,300	816,200	50,300
Elm	25,800	322,500	48,300
Other hardwoods	30,200	377,500	42,300
All hardwoods	883,000	11,037,500	1,825,200
All species[3]	1,350,100	16,876,200	3,126,800

[1]Includes sawtimber. Cord equivalent in rough standard cords is assumed to average 80 cubic feet of peeled wood.

[2]Log scale, International $\frac{1}{4}$-inch rule.

[3]Excludes the net volume of cull trees--27,100,000 cubic feet.

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Table 8.--Net volume of live timber on commercial forest land by diameter class, 1950

Diameter class (in inches at breast height)	Growing stock	Saw-timber
	Thousand cu.ft.	Thousand bd.ft.
Softwoods:		
6	78,100	--
8	86,200	--
10	66,300	239,000
12	67,700	272,400
14	59,200	262,000
16	35,700	160,900
18	26,700	131,300
20	17,800	88,600
22	9,100	44,100
24 +	20,300	103,300
All softwoods	467,100	1,301,600
Hardwoods:		
6	139,300	--
8	173,900	--
10	170,300	--
12	112,700	436,500
14	66,400	281,600
16	62,100	274,600
18	48,700	242,600
20	26,800	136,700
22	31,600	169,800
24	24,600	131,600
26	10,300	57,900
28	9,600	52,700
30 +	6,700	41,200
All hardwoods	883,000	1,825,200
Total	1,350,100	3,126,800

[1] The midpoint of each 2-inch diameter class is indicated.

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Table 9.--Net volume of live timber on commercial forest land by forest type, 1950

Forest type	Growing stock		Saw-timber
	Thousand cu.ft.	Equivalent in cords	Thousand bd.ft.
White pine	144,600	1,807,500	501,100
Spruce-fir-hardwood	95,800	1,197,500	221,800
Spruce-fir	103,400	1,292,500	190,400
White pine-hardwood	51,700	646,200	133,100
Hemlock	53,300	666,200	129,100
Other softwood types	48,300	603,700	92,400
Sugar maple-beech-yellow birch	658,500	8,231,300	1,535,400
Hardwood-spruce-fir	54,600	682,500	156,400
Red oak	36,500	456,200	70,800
Other hardwood types	103,400	1,292,600	96,300
All types	1,350,100	16,876,200	3,126,800

Table 10.--Average net volume of live timber per acre of commercial forest land, by stand-size class, 1950

Stand-size class (and acreage of each class)	Growing stock	Sawtimber
	Cubic feet	Board feet
Sawtimber stands:		
More than 5,000 bd.ft. per acre (179,100 acres)	2,300	9,000
1,500 to 5,000 bd.ft. per acre (343,100 acres)	1,200	3,000
Poletimber stands:		
More than 600 cu.ft. per acre (399,800 acres)	1,000	1,000
200 to 600 cu.ft. per acre (258,700 acres)	400	300
Other[1] (370,900 acres)	100	90
Average, all classes[2] (1,551,600 acres)	900	2,000

[1]Includes seedling-and-sapling stands and non-stocked areas.

[2]Hardwoods constitute 65 percent of the total volume. The average cubic volume in all stand-size classes is equivalent to 10.9 cords per acre.

APPENDIX

DEFINITIONS OF TERMS

Forest Areas

Forest-land area.--Includes (a) lands that are at least 10 percent stocked by trees of any size and capable of producing timber or other wood products, or of exerting influence on the climate or on the water regime; (b) land from which the trees described in (a) have been removed to less than 10 percent stocking and which has not been developed for other use; and (c) afforested areas. (Forest tracts of less than 1 acre, isolated strips of timber less than 120 feet wide, and abandoned fields and pastures not yet 10 percent stocked are excluded.)

Commercial forest-land area.--Forest land that is (a) producing, or physically capable of producing, usable crops of wood (usually sawtimber), (b) economically available now or prospectively, and (c) not withdrawn from timber utilization.

Noncommercial forest-land area.--Forest land (a) withdrawn from timber utilization through statute, ordinance, or administrative order but which otherwise qualifies as commercial forest land, and (b) incapable of yielding usable wood products (usually sawtimber) because of adverse site conditions.

Forest Types

Forest types are classified according to the species or species group that accounts for the major portion of the stand in terms of cubic feet in sawtimber and poletimber stands, or the number of stems in seedling-and-sapling stands.

Stand-Size Classes

Sawtimber stands.--Stands with sawtimber trees having a minimum net volume per acre of 1,500 board feet, International $\frac{1}{4}$-inch rule.

Poletimber stands.--Stands failing to meet the sawtimber stand specification, but at least 10 percent stocked with poletimber and larger (5.0 inches and larger) trees, and with at least half the minimum stocking in poletimber trees. (Poletimber stands carry at least 200 cubic feet per acre.)

Seedling-and-sapling stands.--Stands not qualifying as either sawtimber or poletimber stands, but having at least 10 percent stocking of trees of commercial species and with at least half the minimum stocking in seedling-and-sapling trees.

Other areas.--Forest-land areas not qualifying as sawtimber, poletimber, or seedling-and-sapling stands. (Includes nonstocked areas.)

Tree Classes

Sawtimber trees.--Trees of commercial species that contain at least one merchantable sawlog as defined by regional practice and that are of the following minimum diameters at breast height (d.b.h.): Softwoods 9.0 inches and hardwoods 11.0 inches. (All butt sawlogs are considered merchantable. Where the butt is defective, upper sawlogs are considered merchantable if they account--in terms of aggregate net volume--for 50 percent or more of the gross volume below the top of the uppermost sawlog. Softwood sawlogs are at least 6.0 inches in diameter inside bark at small end; 8 to 16 feet in length; sound and straight enough to be manufactured into standard lumber. The smaller logs are generally free of surface defects other than small tight knots. Hardwood sawlogs are at least 8.0 inches in diameter inside bark at small end; 8 to 16 feet in length; suitable for sawing into standard lumber, construction timbers, or ties.)

Poletimber trees.--Trees 5.0 inches d.b.h. and larger of commercial species that do not meet the specifications for sawtimber trees but do meet regional specifications of species, soundness, and freedom from defect. (These are the trees that are straight and clear enough to make sawtimber trees eventually.)

Seedling-and-sapling trees.--Trees of commercial species less than 5.0 inches in diameter at breast height.

Cull trees.--Live trees of sawtimber or poletimber size that are unmerchantable for sawlogs now or prospectively because of defect, rot, or species.

Timber Volume

Growing stock.--Net volume, in cubic feet, of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) inside bark.

This volume is also given in rough standard cords (bark included). Cord volume is derived from growing stock by applying a factor of 80 cubic feet per cord.

Live sawtimber volume.--Net volume in board feet, International $\frac{1}{4}$-inch rule, of live sawtimber trees.

FOREST-SURVEY METHODS

These forest statistics are based on information gathered from aerial photographs and from sample plots examined on the ground.

First, photo-interpretation plots were marked off on the aerial photographs. These plots were distributed uniformly by mechanical means over photographs of the entire district. Trained photo-interpreters then classified each photo-plot as either forest or nonforest. Forest plots were classified further according to stand-size and forest type.

Field crews inspected some of the photo-plots on the ground. Enough plots were selected at random so as to attain a specified level of statistical accuracy. Species and volume data were collected on these ground plots; and the photo classification of stand size and forest type was verified or--if necessary--changed.

The survey was designed for maximum efficiency in estimating total cubic volume to meet the national standards of accuracy.

ACCURACY OF THE ESTIMATES

The estimates in this report may contain two kinds of error. First, photo-interpreters may make mistakes of judgment and fieldmen may make mistakes in measuring or record-

ing. There is no practical way of finding out just how often such errors occur. But they are kept to a minimum by closely checking all phases of the work.

The second kind of error is associated with sampling procedures. The size of this sampling error can be measured. In Forest District No. 9 the probabilities are 2 out of 3 that the actual forest area is within ± 3.0 percent of the estimated forest area, that the actual cubic-foot volume is within ± 3.6 percent of the estimated cubic-foot volume, and that the actual board-foot volume is within ± 6.5 percent of the estimated board-foot volume. This does not include any mistakes in measurement or classification.

These percentages show that the area estimates are more accurate than the volume estimates, and that the cubic-foot estimates are more accurate than the board-foot estimates.

In each of the tables, the total figures are more accurate than the subtotals. The subtotals are more accurate than any of the individual figures. Figures that are small in relation to totals are subject to larger sampling errors.

SPECIES TALLIED

The various commercial tree species tallied in New York Forest District No. 9 are listed below. Approved common names[4] are shown in parentheses if these differ from the brief name used in the tables. Other tree species may occur in the area, but unless they were tallied on the field plots they were not included in the following list.

Softwoods

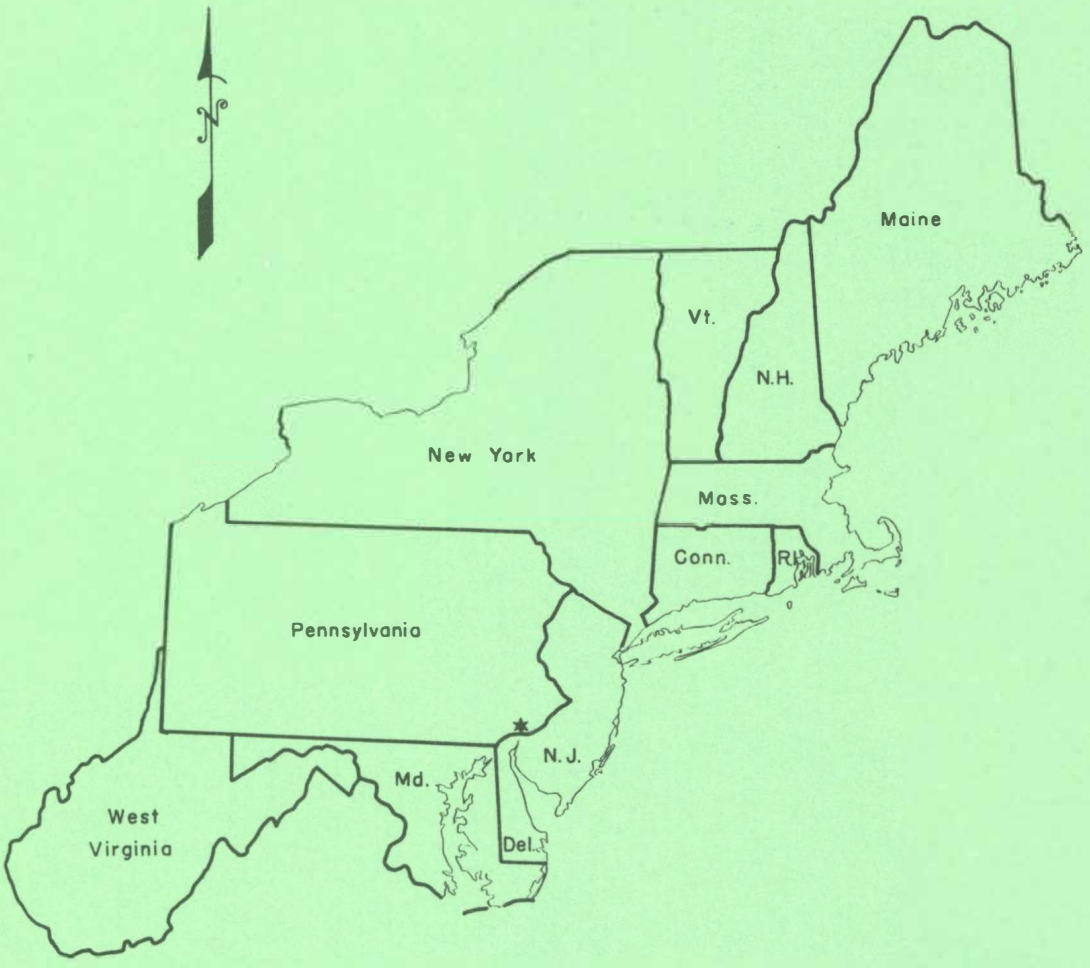
White pine (Eastern white pine) - Pinus strobus
Spruce (Red spruce) - Picea rubens
Hemlock (Eastern hemlock) - Tsuga canadensis
Fir (Balsam fir) - Abies balsamea
Cedar (Northern white-cedar) - Thuja occidentalis
Red pine - Pinus resinosa

[4] LITTLE, ELBERT L JR. CHECK LIST OF NATIVE AND NATURALIZED TREES OF THE UNITED STATES (INCLUDING ALASKA) U. S DEPT. AGR., AGR. HANDB. 41. 472 PP. 1953.

Other softwoods	
(Jack pine)	- Pinus banksiana
(Tamarack)	- Larix laricina

Hardwoods

Sugar maple	- Acer saccharum
Yellow birch (Yellow birch)	- Betula alleghaniensis
(Sweet birch)	- Betula lenta
Beech (American beech)	- Fagus grandifolia
Paper birch	- Betula papyrifera
Red oak (Northern red oak)	- Quercus rubra
(Black oak)	- Quercus velutina
(Water oak)	- Quercus nigra
Red maple	- Acer rubrum
Basswood (American basswood)	- Tilia americana
Ash	- Fraxinus species
Aspen (Bigtooth aspen)	- Populus grandidentata
Elm	- Ulmus species
Other hardwoods	
(White oak)	- Quercus alba
(Hickory)	- Carya species
(Butternut)	- Juglans cinerea
(Black cherry)	- Prunus serotina



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